

U.S. Pat App. No. 10/672,085
Amendment A in response to
Office Action mailed 04/07/2006
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Atty Dkt No. LMRX-P026/P1068

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Remarks/Arguments

Applicants wish to thank the Examiner for the careful review of the claims, specification and drawings.

Claims

Claims 1, 3, and 4 have been amended.

Claims 19-48 have been canceled.

After entry of this amendment, claims 1-18 are pending.

It is respectfully submitted that each and every feature recited in the amended drawing, specification and/or amended claims are fully supported in the specification as filed. No new subject matter has been added.

Rejections under 35 USC § 102

The Office Action rejected claims 1 and 9 under 35 USC §102(b) as being anticipated by St. John et al. (US 3,050,786), hereinafter "St. John."

Applicants hereby amend claim 1, as follows:

1. (Currently Amended) A method for configuring a gas distribution channel, said gas distribution channel being configured for introducing a plasma source gas into a plasma processing chamber of a plasma processing system, comprising:
 - providing a metal conduit;
 - providing a thermo-plastic tubular structure;
 - disposing said thermo-plastic tubular structure within said metal conduit; and
 - ~~applying heat and pressure to said thermo-plastic tubular structure, thereby~~causing said thermo-plastic tubular structure to mechanically couple with said metal conduit wherein an outer surface of said thermo-plastic tubular structure is longitudinally coupled with an inner surface of said metal conduit.

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heating the metal conduit to a first temperature;
cooling the thermo-plastic tubular structure to a second temperature that is below
the melting point of thermo-plastic material of said thermo-plastic tubular structure; and
injecting a resin material between the metal conduit and the thermo-plastic tubular
structure after the cooling.

Support for the amendment can be found, for example and without limitation, in paragraph [0058] and FIGs. 7A and 7B in this application. In the specification as filed, it is pointed out that the metal conduit is first heated to a first temperature and the thermo-plastic tubular structure is cooled down (i.e., going to a higher temperature first with the metal conduit, and then reducing or cooling the temperature of the thermo-plastic tubular structure to a lower temperature) before the resin material is injected.

It should be noted that, in the manner claimed in amended claim 1, the heating is applied to the metal conduit, while the cooling step is applied with respect to the thermo-plastic tubular structure. Thus, there is a heating step applied to one structure (i.e., the metal conduit) and a cooling step applied to a different structure (i.e., the thermo-plastic tubular structure).

On the contrary, St. John requires heating the entire assembly including the metal conduit and the thermo-plastic tubular structure in a heating oven (column 2, lines 62-67). Accordingly, St. John teaches heating both structures (i.e., the metal conduit and the thermo-plastic structure) simultaneously. Further, St. John does not teach the cooling step applied to the thermo-plastic structure as required by the amended claim 1.

The method claimed in amended claim 1 further includes the step of injecting a resin material between the metal conduit and the thermo-plastic tubular structure after the cooling. Contrarily, St. John does not include an injection step.

As such, applicants respectfully submit that the amended claim 1 is not anticipated by St. John.

Further, applicants respectfully submit that modifying St. John's method by injection molding on a metal tubular structure as disclosed by Gregnornik et al. (hereinafter "Gregnornik") does not result in claim 1 as amended. Specifically, neither

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St. John nor Gregnornik discloses or suggests the feature, in the manner claimed, of first heating the metal conduit to a first temperature and then cooling down the thermo-plastic tubular structure to a second temperature.

By heating the metal conduit first, the heated metal conduit is ready for adhesion. Cooling the thermo-plastic tubular structure to a temperature that is below the melting point of the thermo-plastic material before injecting the resin helps preventing the thermo-plastic tubular structure from significant deformation when the resin is injected between the tubular structure and the metal conduit.

On the contrary, Gregnornik et al. teach that a resin (adhesive 14) is applied before a tubular structure is formed by injection molding a thermoplastic 16, before a heat is applied (column 3, lines 28-43).

For the aforementioned reasons and others, it is respectfully submitted that claim 1 as amended is novel, nonobvious, and patentable over the cited art, alone or in combination.

Claim 3 is amended to recite the embodiment wherein the resin includes a set of thermo-plastic polymers. Support for the amendment may be found in the discussion in connection with Fig. 7A.

Claim 4 is amended to recite the embodiment wherein the resin includes a bonding agent. Support for the amendment may be found in the discussion in connection with Fig. 7B.

It is respectfully submitted that the remaining claims that depend from amended claim 1 are also novel, nonobvious, and patentable not only due to their recitations of independently patentable features but also due to their dependence from the patentable parent amended claim 1.

Conclusion

In view of the discussion herein, Applicants believe that all pending claims are allowable and respectfully request a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at 408-257-5500.

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If any petition is required to facilitate the entry of the present amendment, please consider this communication a petition therefore as well. The Commissioner is authorized to charge any fees beyond the amount enclosed which may be required, or to credit any overpayment, to Deposit Account No. 50-2284 (Order No. LMRX-P026/P1068).

Respectfully submitted,

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Joseph A. Nguyen